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Calling the Mayday

James F. Barger

Verona Fire Department

Verona, WI

Abstract

The problem was that the Verona (WI) Fire Department (VFD) had no method for its staff to call for help or for the incident command staff to manage this type of situation often referred to as a "Mayday." The purpose of this applied research project was to determine the contents of a procedure for firefighters to call for assistance and how this procedure would help the employee, department, and community. This applied research project utilized the evaluative and action research methodologies' to answer the following questions;

1. What standards exist that should be a part of a procedure.
2. How does Mayday integrate within the Incident command System?
3. How does Mayday integrate within state and local response protocols?
4. What training protocols are needed to prepare firefighters for informing the Incident Commander they need help and responding to a downed firefight?

The procedure used to answer research question one was to determine what standards exist through literature review. The procedure used to answer research question two was to determine how a Mayday integrates within the Incident Command System (ICS) through literature review. The procedure used to answer research question three was to determine how a Mayday integrates within state and local response protocols through literature review. The procedure used to answer research question four was to determine what training protocols are needed to assist the firefighter to call for assistance and how to respond to the call for assistance through literature review. As a result of this research it was recommended that a Mayday procedure be designed and implemented by the VFD. The research resulted in a Mayday procedure being adopted and implemented by the VFD.

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Introduction

The problem was that during recent Verona Fire District Commission budget meetings the commission members expressed concern regarding the lack of a procedure for VFD firefighters to call for assistance if they should encounter a problem and are unable to call for assistance in a manner that would bring assistance quickly. The discussion continued and included questions on current standards, how a procedure would integrate with the ICS and state and local protocols. Additionally, there were questions regarding training on how to call for assistance as well as responding to that call for assistance. The purpose of this research project was to identify what could be done to properly prepare our firefighters to call for assistance and respond to the call for assistance.

This applied research project utilized the evaluative and action research methodologies to answer the follow four questions: (a) What standards exist that should be a part of a procedure? (b) How does Mayday integrate within the Incident Command System? (c) How does Mayday integrate within state and local response protocols? (d) What training protocols are needed to prepare firefighters for informing the Incident Command they need help and responding to a downed freighter?

Background and Significance

The VFD serves a population of approximately 14,500 people over about 36 square miles including a response territory that includes rural and urban. The department is a combination agency with four full-time firefighters/inspectors, a part-time chief, and the remaining staff being paid-on-call. The VFD is considered an all hazards response agency that does not include EMS. Apparatus operated by the VFD are; 1 – heavy rescue, 3 – engines, 1 – ladder, 1 – brush unit, 2 – tenders, and three support vehicles.

The VFD serves the city of Verona, town of Verona, and a portion of the town of Springdale. The city of Verona has been one of the fastest growing communities in the county located next to the State Capitol, Madison. Verona has transcended from a bedroom community to a city that now experiences large population influxes during typical work hours with continued growth expected. The growth of Verona and surrounding areas has caused an increase in calls for service. The VFD hired its first full-time staff member in 2003 with two more in 2005 and a fourth in 2009.

As community growth continues there are ever emerging challenges and staffing shortages. A computer software company has chosen Verona for its world headquarters and has six structures with three more coming on line. Worker population is at about 2,500 employees and growing. Community growth has caused the municipalities that the VFD protects to initiate infrastructure change and expansion to meet the needs of the community.

Growth to our neighboring communities along with fire department staffing shortages has caused county fire departments to initiate enhanced mutual aid through auto-aid agreements and the adoption of a state-wide mutual aid program called Mutual Aid Box Alarm System (MABAS) to help meet the staffing needs of additional call volume. Many years ago two or three local agencies could handle a structure fire. Due to staffing shortages and increase call volume, it now takes as many as four to six agencies to handle the same type of incident.

With more structures and larger structures being added to our fire district there is a higher likelihood of a firefighter being trapped or unable to exit a structure in a timely fashion. The VFD has no protocol in place for handling such an incident. Since the VFD has no protocol there is no training to prepare firefighters and command staff on how to proceed in such an incident.

This research and ultimate action relates to the United States Fire Administration's Operational Objectives for reducing the loss of life in all civilian age groups and firefighters. The intent of this research is to prepare a procedure for the VFD to follow when a firefighter is unable to exit in a timely fashion before running out of air, or when becoming trapped and in need of immediate assistance. By having a procedure in place, VFD firefighters and command staff will be able to provide immediate assistance and improve the likelihood that the firefighter in need of assistance is able to exit the structure and reduce the likelihood of the firefighter loosing their life.

This research project is also conducted to met the requirements of the Executive Development course and fulfill the course goal of developing and integrating change management and leadership techniques necessary in complex organizations (Federal Emergency Management Administration [FEMS], 2006, 3-27 – 3-30.) A primary concern here is to identify ways to increase the performance of VFD staff during a Mayday situation so as to insure proper response during such an incident. Students are instructed to be proactive in order to identify a potential problem before it becomes a problem. This can be performed by using the A.P.I.E. (analyze, plan, initiate, and evaluation) (FEMS, 2006, p.3-4) method of implementing change through the fire service. In this case it is believed that some form of Mayday procedure is needed now, and in the future. If a Mayday procedure is developed and implemented, it was believed that the VFD would be better prepared to save a firefighter in trouble.

A Mayday procedure will assist the VFD in meeting its mission by including safety procedures that would assist the firefighter in need as well as the citizen in need. The VFD trains on procedures for saving a person caught in a fire or unsafe environment but does not have

procedures or participate in training on saving its own staff that might be trapped or injured and unable to exit a structure on fire or other hazardous environment.

The fire service is a major component of every community thus, needs to act as a leader within the community by identifying potential problems and affect appropriate change. The VFD can take this opportunity to be a leader among local emergency services by leading the way to establish a Mayday procedure.

Literature Review

In order to determine what had already been written on this topic, a literature review was conducted. Resources were consulted to determine what other agencies under similar circumstances have done to alleviate a similar problem and determine what options could be implemented. This literature review included government and fire service publications and procedural recommendations.

My literature review began at the National Fire Academy's (NFA) Learning Resource Center (LRC) while attending Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM), February 2009. I was able to prepare a problem statement and define a purpose. During this process, publications and periodicals, along with on-line sources were identified for potential resource use. After returning home from the NFA I continued to identify sources and conduct research at the local level. Literature reviewed was significant and contributed to the applied research project.

I read (Wisconsin Department of Commerce [WDC], 2002, 6) that 30.14(b) that an incident command system is established with written guidelines applying to all fire fighters involved in emergency operations and which identifies fire fighter roles and responsibilities relating to the safety of operations. That (WDC, 2002, 6) 30.14(d) requires the officer in

command of an emergency operation to be responsible for the overall safety of all fire fighters and activities occurring at the scene of the operation. That (WDC, 2002, 3) 30.07 requires that firefighters be trained for emergency operations as well as the procedures for actions to address special hazards shall be in writing. That training includes procedures to affect his or her safe exit from a dangerous area if equipment fails or conditions change. That the training for structural firefighting be consistent with established fire ground operating procedures, the department procedures should be in writing and address all emergency scene operations. I also read (WDC, 2002, 6) 30.14(3) that if two firefighters are inside fighting fire that there will be two additional firefighters outside staffing a hose line as their backup in case of rescue and that both teams will have Self Contained Breathing Apparatus (SCBA) on. That a third person not involved in the firefighting operation will be outside and in command of the incident.

I read materials that correlate a Mayday situation with a rapid intervention and that priorities will change on the fire ground quickly. That it's important to determine what has taken place and to take into consideration what potential secondary issues could take place without proper stabilization so that trapped firefighters and their rescuers may be extricated from the situation (Barr & Eversole, 2003, 607). That extricating a firefighter may require that we move personnel from another rescue attempt, even temporarily, to extricate a downed firefighter. The main goal of a fire department should be (Barr & Eversole, 2003, 608) to have a rapid intervention crew ready while engaging in practices that would avoid having to use this resource.

Firefighters should know before entering an immediate danger to life and health (IDLH) environment that their Incident Commander (IC) will initiate a search immediately. That the IC will have a rapid intervention crew (RIC) staged and ready for deployment and that the trapped or downed firefighter is a priority to the IC and the RIC. That the RIC should have radio

communications and be assigned to a specific radio channel. There the RIC will have an officer assigned to them along with protocol for conducting the search and rescue along with additional staffing and equipment resources that may be needed. That the radio protocols should include a standard message such as “Mayday” to call for assistance. The Mayday protocols should also call for the IC to request a clear radio channel and air to begin making determinations regarding the downed firefighter’s location and nature of problem(s) so that the IC will be able to respond appropriately and quickly (Barr & Eversole, 2003, 609).

I read (WDC, 2002, 6) 30.07(3) that requires that new fire fighters are prepared for duties including emergency operations to perform emergency operations. The training under this subdivision shall include training in Incident command system.

I read (University of Maryland [UM, 1999], 1999, p.10) where the fire officer is responsible for fire fighters who are lost, trapped or disoriented and cannot get out of an IDLH atmosphere. That there must be a standard signal for evacuation of fire fighters from an imminent life threatening event such as a structure collapse with the firefighter calling out MayDay three times. That this is accompanied by a standard signal such as an alert tone sounded by the dispatcher to alert firefighters and followed by a personal accountability report (PAR) to account for all fire fighters. That there will be radio silence and a signal form dispatch that there is a mayday (UM, 1999, p.14).

An acronym is recommended to be used by the downed fire fighter to call for help and provide the fire officer with information that will assist the rescue. The acronym is L.U.N.A.R. which means location, unit number or crew, name of fire fighter, assignment, and resources needed. The IC then calls for a PAR on the tactical channel to compare staffing with Personal

Accounting Tags (PAT) at the command post. Each crew will respond to the IC whether they have a par or don't have a par (UM, 1999, p.14).

A rapid intervention crew/team is assigned by the IC as a rescue intervention team. This team may have been assigned based on the two in two out process. Fire fighters need to learn survival techniques in order to survive a critical incident or conduct a rescue (RIT) (UM, 1999, p. 15). A fire officer must also have practiced to be prepared for handling such a critical incident. That the theories, concepts, and realities of such an event must be taught and practiced on a national level to be successful and minimize fire fighter injury and loss of life through focus and attention on the "theory of multiple causation." Meaning that there is more than one reason for a fire fighter to become injured, incapacitated, lost, or killed. This theory is partially based on the human factor. That a "firefighter survival training system model" the following; The firefighter needs to know how to practice situational avoidance, know how to get out of problems, know how to rescue a firefighter in trouble, and train on these issues regularly (UM, 1999, p. 16).

Firefighters may use nationally recognized techniques to survive a critical situation and get themselves out. Some of these techniques are; two in, two out, RIT, ladder rescue drill, personal rope escape, and wall breach just to name a few (UM, 1999, p. 16). These techniques and others were developed due to firefighter injury and death. This included policy and training on such things as; carrying portable radios, accountability systems, pre-fire planning, increased staffing, rapid intervention, command processes, and hazardous condition recognition (UM, 1999, p. 17).

The fire officer must manage the incident and the RIT during a high profile incident. A RIT can conduct a number of things prior to a call to action to be better prepared. Some of these

things are; size-up, work in pairs, communicate with partner, work in a orderly fashion, conserve air, identify primary ingress/egress locations, search proficiency, use a hose line, know building construction and know communication and procedures if they become lost or trapped(UM, 1999, p. 17).

A RIT should be established anytime (UM, 1999, p. 18) there is an IDLH atmosphere, structure fire involving the use of SCBA and 1 ¾" hose lines, incidents where firefighters could become trapped, injured, disoriented, or lost. The duties of the RIT are; report to IC over tactical channel, conduct size-up, monitor radio traffic, ladder all possible egress areas to upper floors of structures, remain in position for possible rapid deployment and maintain a positive attitude. The RIT should also have appropriate equipment such as; SCBA, search rope, tools, jacks, cribbing, lights, airbags, etc… at their disposal for possible use. The RIT may be deployed when there is a; PASS device sounding, mayday given, report of lost, missing, or injured firefighter, explosion, collapse, backdraft, sudden increase of fire where firefighters are known to be, and low pressure alarm sounding on an SCBA and no firefighter is exiting (UM, 1999, 19).

A company officer may be assigned (UM, 1999, p. 17) to the RIT and must be attentive to the listed information but should also practice (UM, 1999, p. 19) his/her own size-up and relay to the IC, insure adequate crew staffing, monitor communications, know were crews are operating and anticipate potential problems and locations.

This type of rescue is a major function so may be delegated (Barr & Eversole, 2003, 594) by the IC in order to maintain a proper span of control. The authority for the RIC can be delegated to a branch director. Then Incident Command System (ICS) (Barr & Eversole, 2003, 595) is a flexible in that it can easily be expanded or shrunk to meet the needs of the IC. The IC

is in charge of rescues and initiating operations based on agency rescue training and guidelines to include safe working limits.

A fire ground Mayday includes firefighters who are trapped, entangled, fall through a roof or floor, lost, injured, stuck, or some other mishap that does not permit the firefighter to get our of the IDLH atmosphere before depleting the air in their Self Contained Breathing Apparatus (SCBA).

A reading indicates Recommendations for fire departments regarding preventing fire fighter fatalities that fire fighters need instruction on how to initiate a mayday and activate their personal alert safety system (PASS) device when they become lost, disoriented, or trapped (Department of Health and Human Services: National Institute for Occupational Safety and Health [NIOSH], 2008, p. 14). That there needs to be a tone or alert recognizable by all fire fighters immediately when transmitted that conditions may be unsafe for fire fighters. This document (NIOSH, 2008, p. 15) also recommends assessment of department policy regarding mayday.

It has been determined that a RIT has not always been assigned as a dedicated crew for fire fighters for rapid deployment to rescue lost or trapped fire fighters. That anytime fire fighters enter an IDLH atmosphere that a RIT be established (NIOSH, 2008, p. 28). Staffing recommendations for fire departments are that no interior fire operations be conducted until four fire fighters are on scene in order to maintain tow-in and two out. That adequate fire suppression equipment and available for fire control operations along with adequate staffing and maintain team continuity (NIOSH, 2008, p. 30).

A reading of (McCormack & Pressler, 2002, 16) provided information on how the firefighter can manage their mayday by first orienting themselves by calming themselves,

checking the status of their air supply, noting what they were doing, where they were and whether their crew is intact. This quick systematic assessment may allow the firefighter in potential trouble to solve the immediate problem and get to safety.

The firefighter should also communicate with their crew to ensure integrity of the crew as they may have become separated. There may be a lot of noise with difficulty in hearing the radio or for someone outside or a crew member to hear them calling for help and providing instruction. Calling out for other crew members without the radio may get their attention but if that doesn't work, call on the radio. While communicating it's important to still deal with the current problem. (McCormack & Pressler, 2002, 17)

The firefighter needs to call for assistance by alerting the incident commander of the problem. The incident commander needs to know some basic information such as; last know location, unit number or identification used, firefighter's name and assignment along with radio equipment. The inclusion of this information in the radio call may be remembered through the use of the acronym LUNAR (Location, Unit, Name, Assignment, Resources). The firefighter should also inform the incident commander of the status of their crew for accountability purposes. Also to make the crew aware of the problem as they may not be aware of it. If the crew is aware and helping the firefighter this is important for the incident commander to know for resource management. After radio calls continue to make attempts to solve the problem (McCormack & Pressler, 2002, 18).

An important thing for the firefighter to do is to activate the Personal Alerting Safety System (PASS) alarm to alert those assisting the firefighter to more quickly locate them. If the PASS isn't activated firefighters looking for the firefighter in trouble will not be able to locate them quickly or go right past them and not realize it. Firefighters should be trained to react to

the sound of a PASS and not go past it or let a firefighter go past them without checking on their status. The firefighter in trouble shouldn't lay still waiting for the PASS to activate on its own as seconds will be passing and impede rescue progress (McCormack & Pressler, 2002, 19).

Continue to make attempts to solve the problem at hand as the firefighter may finally be able to do so. The firefighter should also maintain communication to provide additional information or updates or that they have solved the problem the level of rescue need and resources may have change (McCormack & Pressler, 2002, 19).

A reading where procedures for the IC are suggested in case of a mayday. The IC will typically receive the mayday via radio and should anticipate such an event and have the appropriate resources ready, mainly a Rapid Intervention Team (RIT) with tools and a plan. Once the mayday has been called the plan must be put in place immediately. The IC should first confirm the mayday via radio and stop non-essential radio transmissions. Fireground companies that must still conduct work should be transferred to another fireground radio channel so that radio contact may be maintained with the firefighter in trouble. Identify the firefighter, location and determine the condition of the firefighter and nature (Kolomay & Hoff, 2003, 129) of the trouble, i.e. entanglement, lost, low air, etc…

The IC should also check the current conditions around the firefighter such as fire, heat, smoke, etc… as this may dictate method of rescue and what the firefighter can or cannot do to get help. A window being broke out could cause the fire to increase in such a manner that rescue attempts are impeded or non-existent. If the PASS doesn't work, or even if it does, instruct the firefighter to make additional sound if possible such as pounding on the floor or a wall with a tool, break a window if possible. Make sure the PASS is activated. Assign a commander to the RIT operation then start a fireground personal accountability report. Assign additional RIT's to

backup the first one deployed and to also have another on standby. The IC must also maintain original operations such as fire suppression and call additional companies to assist.

A reading (Jakubowski & Morton, n.d., 63) indicated that a downed firefighter can be a most difficult and stressful situation for an IC and that the first order of business for the IC is to maintain self control. That if the IC doesn't maintain self control, they won't be able to control others on the fireground. The IC must gather a lot of information quickly and as accurate as possible in order to determine what is going on currently on the fireground so as to determine if those tasks may continue while preparing to assign a RIT. The IC must prioritize all events on the fireground, i.e. suppression, ventilation, evacuation, etc… to determine what should or should not continue while the rescue is performed.

The IC must consider requesting additional assistance as a rescue may require additional resources that are not already on scene and quickly overtax current resources. This all depends upon what activities are taking place on the scene and the IC must determine the risks (Jakubowski & Morton, n.d., 64) of all operations.

It's up to the department to determine where RIT fits into the ICS within their department. Often departments place RIT under the Safety Officer position allowing RIT to answer to that assigned person at the function of RIT is closely aligned with safety as it fits into the ICS. A concern here is that communications may not flow to the IC. RIT may also fall to the Operations Officer and from here the RIT could be assigned into action quickly with communications flow being better. In hazardous material incidents the Safety or Hazardous Material Officer may assigning the RIT which means that they will be close by to know what is taking place and deploy much quicker (Jakubowski & Morton, n.d., 64).

Another location is staging yet that may not allow the RIT to deploy quickly as staging is typically away from the scene. This also means that RIT may not have as much information to deploy quickly. Since on many scenes these positions may not be filled, the logical person to answer to is the IC. The IC may prefer this for information flow and accountability for clear communication and quick deployment for a firefighter in trouble. On larger scenes with more ICS positions filled it may be difficult to maintain a team liaison. The IC must determine where the RIT fits into the incident ICS based (Jakubowski & Morton, n.d., 65) on all of the preceding issues.

A (National Fire Protection Association [NFPA], 2007, 3.3.69.2 p.1500-10) definition of an emergency operation is activity of the fire department relating to rescue, fire suppression, emergency medical care, and special operations, including response to the scene of the incident and all function performed on the scene. Section 4.1.2 indicates that the department shall prepare and maintain written procedures that document members roles and responsibilities, expected functions, and training requirements for staffing to perform functions and how the functions is completed, how (p.1500-11) the incident will be managed. Also required is (p.1500-30) section A.3.3.78 required Rapid Intervention Crew for the primary purpose to rescue injured lost or trapped firefighters along with a personal accountability system.

National Fire Protection Association [NFPA], 2007, chap 7 p.1561-9) indicates that the IC will be in charge of the whole operation to include incident action plans, safety, accountability, request and application of resources. This standard also (2007, p. 1561.12) indicates that the command structure can be escalated or deactivated depending upon the complexity of the incident taking into consideration SOP's. The standard also indicates that (2007, p. 1561-16) that that there should be a procedure for emergency notifications such as

changing conditions or a firefighter down, that this could include sounding of apparatus air horns, firefighter calling “mayday”, or some one stating there is an emergency or emergency traffic on the radio. That the tactical operation could include a pre-assigned radio channel to handle such emergency events on. A department procedure indicates that the IC shall provide for additional accountability responders based on the size, complexity, or needs for an incident. Span of control can be reduced by implementing additional ICS positions (2007, p. 1561-24). The department procedure should provide for clear text radio messages for emergency incidents and use emergency traffic as a designator to clear the radio traffic. Emergency traffic can be declared by the IC for a member in trouble or subject to emergency conditions. Clear text shall be used to describe the emergency condition present such as fire fighter down, firefighter missing, firefighter trapped, hazard identification, change in conditions, serious conditions, etc…

The Mutual Aid Box Alarm System (MABAS) of Wisconsin (MABAS, 2008) provide direction relative to the IC giving emergency signals to alert personnel of an impending emergency. That the IC can request the sounding of apparatus horns and radio signals to alert personnel of an evacuation, dangerous situation, personnel accountability report or emergency traffic. That once the emergency radio signal is given the IC will then announce that all units should stand by for emergency traffic then tell what the emergency (2007, p. 1561-24) traffic is, i.e. firefighter trapped, evacuation, etc…

The Dane County Public Safety Communications Center [DCPSC], (2009) for radio communications. According to chapter 2S-1 p.40 emergency traffic communications shall be used by any unit having a problem which will focus all communications to that priority. The IC will request the DCPSC activate this process by announcing that there is now “emergency traffic” then activate the emergency tone which is a warble to get all personnel attention. That

the current radio channel with the emergency will be cleared. DCPSC will ensure that the IC is aware, and an emergency traffic only message will be broadcast. The message will include an alternate radio channel for all other fire ground operations to transfer to. All resources will focus on the problem until it's rectified. Once this has been done the IC and DCPSC will then announce that the emergency traffic conditions have cleared and the radio channel can now be used for regular communications.

In a reading (United States Fire Administration [USFA], 2006 p. 11) I learned that this training concludes that calling a mayday is a system that involves people, radios, training with testing to ensure that firefighters possess the knowledge, skills and ability to work as a team with 100% accuracy in saving a firefighter's life.

In a reading (Everyone Goes Home [EGH], 2009) I learned that an example policy for a mayday and lists what a command response should include. That command should change the current plans to that of a high priority, request added resources, check accountability, commit a rapid intervention team and assign a safety officer; confirm what radio channels need to be monitored while reinforcing staffing, open and unlock structure doors and have emergency medical at the ready.

Procedures

The procedures used in this applied research paper were determined based on the identification of a problem that if corrected would provide great benefits for the VFD. The problem was that the VFD had no mayday procedure in place to assist or rescue a firefighter who

is in some form of trouble and unable to safely exit a hazardous environment before depleting their air supply.

With the problem identified this researcher focused on locating a solution and developing a procedure to assist VFD in preparing a firefighter on how to call for assistance. The research also addressed how the incident commander would handle the mayday and send assistance. In order to locate information regarding the content and benefits of a department mayday procedure research was conducted to answer the research questions so as to provide a basis to develop a procedure.

Results

The results of this applied research project were compiled from literature review. The questions posed in this applied research project are listed here with the results and findings in a logical and narrative format.

#1: What standards exist that should be a part of a procedure? ICS will be established with written guidelines applying to all firefighters in involved in emergency operations to identify their (WDC, 2002, p. 6) roll and responsibility. That the officer in command of an emergency operation be responsible for the overall safety of all firefighters and activities occurring at the scene of the operation. It's required that firefighters be trained for emergency operations as well as the procedures for actions to address special hazards shall be in writing. If two firefighters are fighting fire it's required that two firefighters are outside (WDC, 2002, p. 3) staffing a hose line and prepared to be a (WDC, 2002, p. 6) rescue team. That one firefighter is outside and in command of the operation.

A trapped firefighter should be considered a priority and that a RIC should be at the ready and that the IC may have to (Barr & Eversole, 2003, p. 608) suspend other rescues in order to

save a downed firefighter. An emergency is defined as activity relating to rescue, fire suppression, emergency medical care and special operations and all functions related to the scene. That the department shall prepare and maintain written procedures that document member roles and responsibilities, expected functions, training requirements performing functions and how they are completed (NFPA, 2007, p. 1500-10) as well as how the incident is managed. A RIT is also required for the primary purpose of rescuing injured, lost or trapped firefighters, and, a (p.1500-30) personal accountability system. The IC will be in charge of the whole operation including incident plans, safety, accountability, along (2007, p. 1561-9) with the request and use of resources. This standard indicates that that the command structure can be flexed depending on the complexity of the incident and taking into (2007, p. 1561-12) consideration department SOP. This standard also includes protocol for emergency notification such as a firefighter in need of help (2007, p. 1561-16) and calling or a mayday. That apparatus horns should be sounded to alert others of the mayday or emergency or emergency radio traffic. That pre-arranged radio channels could be identified, and that the department procedure should spell out what the IC should provide guidance for the IC to use emergency traffic as a designator to clear radio traffic (2007, p. 1561-24) during emergency conditions. That the IC will describe what is taking place such as a mayday to alert other firefighters. Fire departments should assess (NIOSH, 2008, p. 15) policy regarding mayday.

#2: How does mayday integrate within the incident command system?

The IC is ready to initiate a rescue immediately if needed. That standard radio protocols should be established for the RIC and that along with this, the IC can request a clear radio channel to assist the firefighter (Barr & Eversole, 2003, p. 609) in need of help. That there must be a standard signal for firefighters to know of an evacuation in emergency operations such as an

apparatus air horn and that once firefighters are out of the danger zone that a PAR is conducted to account for firefighters and compare the PAR with the PAT. That each crew will respond to the IC for accountability (UM, 1999, p. 14) and that the IC on whether they have PAR.

A RIT must be established and managed by the IC. That a RIT shall be established anytime there is an IDLH atmosphere with one of the duties (UM, 1999, p. 17) to be reporting to the IC. A company officer may be assigned to the RIT and depending upon span of control authority for RIT can be delegated to a branch director as the ICS is flexible as it can be expanded or reduced depending (Barr & Eversole, 2003, p. 595) on the needs of the IC.

It's recommended that no interior firefighting should take place (NIOSH, 2008, p. 30) until there are enough firefighters on scene to maintain a two-in, two-out status to maintain team continuity.

Suggested procedures for the IC help to handle a mayday by the IC and that the IC should anticipate such an event and have a RIT on standby with proper tools. That once a mayday is called via radio the IC needs to confirm the mayday via radio and stop other non-essential radio transmissions. The RIT must be assigned to a radio channel and the IC needs to identify the firefighter in trouble and the specifics of their problem. The IC must also check the conditions around the firefighter in trouble to help determine rescue needs (Kolomay & Hoff, 2003, p. 129) and plan against secondary problems.

Handling of a mayday by an IC can be very stressful on the IC and that the IC must first control themselves since without controlling self, the IC won't be able to control the fireground. The IC must prioritize all fireground events in order to affect rescue of the firefighter in need of assistance. As the IC commits resources, more may be needed the IC must quickly determine what is needed and start requesting sufficient resources to handle the situation. The department

must determine how the mayday and RIT fit into their ICS. That communications must be a part of the overall system. A RIT may be assigned to the Operations officer. In hazardous material calls the RIT may be assigned to the incident Safety officer or the hazardous material officer. Since these offices are typically close to (Jakubowski & Morton, p. 63) the action they will better know what's going on.

Depending upon scene size the RIT may be assigned to a staging area (Jakubowski & Morton, p. 63) but this could delay the RIT deployment. Since it's up to the IC to determine where they want the RIT, it may be best to have the RIT near the command post so the team is better prepared to take action.

#3: How does mayday integrate within state and local response protocols? The IC can depend upon protocols established that suggest that the IC use apparatus air horns and radio signals to alert firefighters to an on scene emergency such as an evacuation, dangerous situation, PAR or emergency radio traffic. That once the signals are provided that the IC will then announce on the radio for all personnel to standby for a message that will inform them of what the emergency situation (MABAS-WI, 2008) is such as a mayday or other urgent situation.

The IC can also depend upon the use of radio procedures to assist in emergency situations to focus communications on the priority. The IC can request that the emergency radio signal be given to get personnel attention and to clear the air for emergency radio traffic as well as additional radio channels being provided. This will help to bring resources to bear on the problem until (DCPSC, 2009, p. 40) the problem is corrected.

The department shall establish an incident command system with written guidelines applying to all firefighters involved in emergency operations and which identifies fire fighter roles and responsibilities relating (WDC, 2002, p. 6) to the safety of operations.

#4: What training protocols are needed to prepare firefighters for informing the incident commander they need help and responding to the downed firefighter? Calling a mayday is a system (USFA, 2006, p.11) that includes people, radios, and training along with testing to make sure firefighters possess the knowledge, skills and ability to work as a team with 100% accuracy in saving the life of a firefighter. Firefighters require training (WDC, 2002, p. 3) on emergency operations and special hazards; and training on how to quickly exit a dangerous area if equipment fails for conditions change.

New firefighters must be prepared (WDC, 2002, p. 6) for duties that include emergency operations and ICS. That a fire officer is responsible (UM, 1999, p. 12) for getting firefighters out of an IDLH atmosphere who are lost, trapped or disoriented and unable to exit. That a standard signal for evacuating firefighters be included from apparatus air horns and a signal from a communications dispatcher. That this should be followed up by a PAR to account for firefighters. That a firefighter calling for help should also have a standard signal by calling out a mayday multiple times on the radio. That once a dispatcher has received such a signal that the dispatcher (UM, 1999, p. 13) should repeat that there is a mayday.

A firefighter in trouble and not able to exit and IDLH atmosphere and in need of help must get pertinent information to the IC. By using a simple acronym the firefighter can provide critical information through LUNAR which provides the IC with the firefighter's location, unit number or crew, name of the firefighter, assignment, and resources needed (UM, 1999, p.14) to assist him/her. The IC needs to forward a RIT to assist the firefighter while the firefighter tries to assist themselves with skills they have learned. The firefighter on the RIT need to practice situational avoidance, know how to get out of the problems, know how to rescue a firefighter in trouble, and train on these issues regularly. Firefighters can use nationally recognized (UM,

1999, chap16) techniques to survive a critical situation and get the selves out of the situation though two-in, two-out, RIT, ladder rescue drill, personal rope escape, and wall breaches which could save their lives. This includes policy and training on such things as carrying portable radios, accountability systems, pre-fire planning, increased staffing, RIT, command processes and recognizing hazardous (UM, 1999, p. 17) conditions.

The fire officer must manage the incident and RIT while the RIT can do a number of things during intervention such as size-up, work in pairs, communicate with partner, work orderly, conserve air, identify primary ingress/egress locations, search proficiently, use a hose line, know building construction, know communication procedures (UM, 1999, Chap 17) if they become trapped or lost.

The RIT should have the appropriate equipment and should be deployed whenever a PASS is activated, mayday given, report of lost, missing, or injured firefighter, explosion, collapse, backdraft, sudden increase in fire where (UM, 1999, p. 17) firefighters are known to be. Firefighters need to know how to call for help and receive such instruction on how to initiate a mayday and activate their PASS device when lost, (NIOSH, 2008, p. 14) trapped or disoriented.

A firefighter who calls a mayday must know how to manage it by orienting and calming themselves, check status of their air supply, noting what they were doing, where they were and whether their crew is intact. This quick assessment may allow a firefighter in potential trouble to solve immediate (McCormack & Pressler, 2002, p. 16) problems and get to safety. Firefighters also can also call their crew to check integrity as they may have become separated keeping in mind that there may be a lot of noise and difficult for others to hear them calling by voice and/or radio. The firefighter must still manage their (2002, p. 17) situation while calling.

The firefighter must also call the IC (2002, p. 18) and let him/her know of their situation and the firefighter can help the IC out by providing information and using the LUNAR acronym while passing on information regarding the status of their crew. The crew may not be aware of the problem. The crew may be the first to provide assistance and the IC will need to maintain radio communication to understand the problem while making decisions on what to do. The firefighter must activate their PASS as the team or firefighters looking for he/she may go right past them and not know it due to smoke and obstacles. The firefighter should also not simply set still waiting for the PASS to sound as setting still means time is passing and the firefighter may be able to solve the problem at hand and exit, but must continue to keep the IC updated as a firefighter solving their own problem may reduce the amount of resources required. The IC must continue to check the conditions around the firefighter to help determine method of rescue and what the firefighter can and cannot do to get help. Some things that the firefighter could do could cause things to get worse. If the PASS doesn't work, IC can instruct the firefighter to make other sounds to help RIT locate them. The IC must continue original operations while conducting a PAR and requesting more resources to (2002, p. 19) help with rescue and act at a RIT.

Discussion

Through this research it has been determined that having a procedure in place to deal with a mayday is critical to the safety of the firefighter in need of assistance. That calling a mayday (USFA, 2006, p. 11) is a system that involves people, radios, training and testing to ensure that firefighters possess the knowledge, skills and ability to work as a team with 100% accuracy in saving a firefighter's life.

Since it is our intent to ensure that our firefighters go home it's incumbent upon command staff to know what to do and take the mayday serious by changing the incident priorities to help the firefighter by calling for additional resources, verifying the accountability of our staff, committing a RIT while assigning a safety officer noted in an example policy. The officer shall confirm radio channels to be used for the mayday and current operations while enhancing staffing on the fireground to ensure that there are sufficient staff for regular operations and the mayday. Command should also ensure that all exits are unlocked and open, and that emergency medical (UM, 1999 p. 18) staffing is also increased.

Because priorities will change rapidly (Barr & Eversole, 2003, p. 607) and that the IC will need determine what has taken place yet take into consideration what could take place if he/she doesn't plan accordingly, that secondary issues must be considered before deploying any actions, specifically a RIT. The goal is to assist the firefighter in need while maintaining current fireground activities and that the IC will need to adjust staffing to accomplish both tasks even if it's only temporary. A goal of every fire department should be to (Barr & Eversole, 2003 p. 608) have at RIT ready with hopes that it will never be needed to save a firefighter.

It is imperative that firefighters receive training in this area (NIOSH, 2008, p. 14) so as to know how to initiate a mayday while activating their PASS when becoming lost, disoriented or trapped, injured, stuck or other mishap (Barr & Eversole, 2003, p. 594) and the firefighter cannot exit the IDLH atmosphere before depleting the air in their SCBA. That part of this process to include a sounding some form of tone alert that's easily recognized by firefighters that conditions may be unsafe for firefighters. That the fire department assess their policy (NIOSH, 2008, p. 15) regarding a mayday which means that a fire department should have some form of procedure to follow in such an incident.

A fire department emergency may be stressful enough but having a firefighter call in a mayday (Jakubowski & Moron, p. 63) may pose a most difficult and stressful situation for an IC. That the IC will need to exhibit some self control as they won't be able to control the fireground and mayday if they can't control themselves. Because the IC must gather a lot of information quickly and accurately they need to learn very quickly exactly what's taking place on the fireground while learning about the reason for the mayday in order to prioritize events and assign a RIT. The IC may quickly overtax current staff and must (Jakubowski & Morton, p. 64) call for additional resources in order to affect the mayday rescue and maintain other designated operations.

A fire department should define emergency operations in procedure (NFPA, 2007, p. 1500-10) such as rescue and include it in procedure to include the roles staff will have to assume (NFPA, 2007, p.1500-30), expected functions, and training that is required for staff to perform the functions and how the functions will be completed and how the incident will be managed. Part of that procedure should include what a mayday is. A mayday is where a firefighter (UM, 1999 p. 12) is lost, trapped or disoriented and cannot get out of an IDLH atmosphere and the fire officer is responsible for these firefighters.

In order for this process to be successful and ICS should be established through written guidelines that apply to all firefighters involved in emergency operations that identified the roles and responsibilities of firefighters related to safety of operations. That the IC in charge of emergency operations be responsible for the overall safety of all (WDC, 2002, p.6) firefighters and activities occurring on the scene of the operations.

These procedures should also include training relative to the mayday especially (WDC, 2002, p.3) emergency operations and actions to deal with the special hazards. Training Should

include procedures to effect the safe exit of a firefighter from a dangerous area if equipment fails or conditions change. That the training for structural firefighting be consistent with fire ground operation procedures and that all of this should be in writing. The training required (WDC, 2002, p.6) by a firefighter to prepare for emergency operations (UM, 1999, p. 15) shall include Incident Command System.

In order for the IC to manage the mayday they must implement a management structure (Barr & Eversole, 2003 p. 595) such as the ICS as it's flexible and can be easily expanded or shrunk to accommodate the needs of the IC. Since the IC will be requesting and dedicating resources, they must also (Barr & Eversole, 2003, p. 594) the IC will need to maintain a proper span of control and this is done through the ICS. The IC is in charge of initiating operations and rescues based on agency policy and training that includes safe work limits along with (NFPA, 2007, p. 1561-9) the overall operation including incident action plans and safety, accountability, request and application of resources. Depending upon the complexity of the situation, (NFPA, 2007, p. 1561-12) the command structure can be escalated or deactivate while taking into account SOP's. Additionally, the IC should not be (WDC, 2002, p. 6) be inside conducting fire suppression, they should be a third person not involved in firefighting operations and outside in command of the operation.

Part of this scene management must include assignments beginning with a (NIOSH, 2008, p. 28) RIT which is dedicated crew of firefighters for deployment to rescue lost or trapped firefighters. Anytime firefighters are in a IDLH atmosphere a RIT should be established. It's recommended that staffing (NIOSH, 2008, p. 30) include RIT anytime interior firefighting is taking place and that for each two firefighters that are engaged in interior firefighting, that there

be two firefighters outside so that there will be adequate fire suppression equipment and staffing to control operations and maintain team continuity.

Where the RIT fits into the ICS is up to the department whether it is assigned to the Safety Officer or the Operations Officers. In a hazardous material incident the RIT may be assigned by the Safety Officer or Hazardous Material Officer. In either case the question of quick deployment and communications flow must be considered as the RIT must be able to deploy quickly but also must know what's going on (Jakubowski & Morton, p. 64) at all times in order to have the most up to date information before deploying.

Staging (Jakubowski & Morton, p. 65) may be another location yet this may mean that the RIT is not able to deploy as quick and may not have all of the latest information. Since this will be determined by the IC it may be best if the IC keeps the RIT close to the command post for ease of deployment and information flow. Since the RIT should be staffing a hose line (WDC, 2002, p. 6) and have SCBA on, it may be best if the RIT is near the location where the two firefighters entered the structure so that the RIT can minimize deployment time. The IC must manage the ancient and RIT during high profile incidents. The RIT can conduct a number of things before deployment. They can monitor size-up, know building construction, entrance and egress points and know communications. This will be critical once inside and while inside they can work and communicate with each other, conserve air, search proficiently, use a hose line, and be better informed and prepared (UM, 1999, p. 17) if they are to become trapped, lost, or disoriented.

Anytime there is an IDLH atmosphere structure fire involving the use of SCBA, 1 ¾" hose lines, or incidents where firefighters could become trapped, injured, disoriented, or lost, a RIT should be established. While on stand-by the RIT can monitor radio traffic, conduct size-up,

place ground ladders at all possible egresses points to upper floors of structures, remain in position for possible rapid deployment and maintain a positive attitude. The RIT should also be equipped with SCBA, search rope, tools, and (UM, 1999, p. 17) have other resources and special equipment available to them.

A RIT may be deployed under the following circumstances. There is a PASS activated, mayday given, report of lost, missing, injured, trapped, or disoriented freighters, and, there is explosion, collapse, back draft, sudden increase of fire where firefighters are know to be and low pressure alarm sounding on an SCBA and no firefighter is exiting. The IC may decide to assign a company officer to the RIT. The company officer may conduct some of the same items already mentioned but also should be attentive to radio traffic, staffing, know where crews are working and anticipate (UM, 1999, p. 19) potential problems and locations.

Firefighters need to know that before entering a IDLH atmosphere (Barr & Eversole, 2003, p. 608) that the IC will initiate a search immediately and have a RIC staged and ready to deploy. That firefighters in trouble are a priority to the IC and RIC. That the RIC should (Barr & Eversole, 2003, p. 609 have radio communications and be assigned to a specific radio channel. That an officer may be assigned to them along with procedures for conducting the search and rescue, additional staffing and resources that may be required. The procedure should include a standard message such as “mayday” to call for assistance. That a mayday should include the IC requesting a clear radio channel to begin making determinations regarding the firefighter having trouble such as; location, what the problem is so that the IC may begin responding to the firefighter quickly and appropriately.

In order for the IC to alert other personnel on the fireground that there is a problem, a standard signal should be used to get the attention of all personnel (UM, 1999, p. 13) regarding

an imminent life threatening event such as a collapse and the need to evacuate personnel from an IDLH atmosphere. That a signal like an apparatus air horn could be used (UM, 1999, p. 14) then followed by a (PAR) to account for firefighters. That a firelighter that is in trouble should have as standard signal to call for help by used the term mayday, mayday, mayday. That radio silence will be observed and that there will be a signal from dispatch that there is a mayday.

There needs to be protocol (NFPA, 2007, p. 1561-16) for emergency notifications such as changing conditions or firefighter down. That this could include apparatus air horns sounding, a firefighter calling mayday, or someone stating; emergency traffic on the radio. Tactical operations could include a pre-designated radio channel to handle such an emergency. The IC should (NFPA, 2007, p. 1561-24) provide additional accountability responders based on the size, complexity or needs of the incident. That the span of control may be reduced by implementing added ICS positions. Agency procedure should include for clear text radio messages for emergency incidents and to use emergency traffic as a designator to clear the radio traffic. Emergency traffic can be declared by the IC for a member in trouble or subject to emergency conditions. Clear text shall be used to describe the emergency conditions present such as firefighter down, missing, trapped, change in conditions, serious conditions or hazard identification.

Emergency traffic conditions shall be used by any unit having a problem which will focus all communications to that priority. The IC will request that DCPSC staff activate this process by announcing the emergency traffic then activating the emergency tone which is a warble sound to get the attention of all personnel. That the current radio channel with the emergency will be cleared. The dispatcher will ensure that the IC is aware, and an emergency traffic only message will be broadcast. The message will include an alternate radio channel for all other fire ground

operations to transfer to. All resources will focus on the problem until it's rectified. Once this has been done, the IC and DCPSC will then announce that the emergency traffic conditions have (DCPSC, 2009, p. 40) cleared and the radio channel can now be used for regular communications.

The IC will most likely receive the mayday via radio and should anticipate such an event, the IC is using suggested procedures that begin with having a RIT with tools at the ready along with a plan. The plan must be initiated immediately beginning with verification of the mayday via radio and stop non-essential radio transmissions. Fireground activity that must be continued should be conducted on a different radio channel so the IC may maintain communications with the firefighter in need of help. The IC needs to identify the firefighter, where the firefighter is and their condition and (Kolomay & Hoff, 2003, p.129) nature of the problem, i.e. entangled, lost, low air, etc…

MABAS also provides direction to the IC about giving an emergency signal to alert personnel of an impending emergency. That the IC can have apparatus horns sounded and radio signals used to alert personnel of such things as an evacuation, dangerous situation, PAR, or emergency radio traffic. After the signal the IC will provide an announcement regarding the emergency and that all personnel (MABAS, 2008) should stand by for that information.

The IC must also check the conditions around the firefighter to check fire, heat and smoke conditions as these conditions will dictate the method of rescue and what firefighters can and cannot do (Barr & Eversole, 2003, p.609).

The IC will assign a RIT as a rescue team based on the two-in, two-out process. Firefighters also need to learn survival techniques in order to survive a critical indecent or conduct a rescue. The fire officer must have practiced handling such incidents so as to be

prepared for the real incident. That the theories, concepts and realities of such an event must be taught and practiced on a national level to be successful and minimize fire fighter injury and loss of life through focus and attention on the "theory of multiple causation." This means that there is more than one reason for a firefighter to become injure, incapacitate, lost, or killed. This theory is partially based on the human factor in that a "firefighter survival training system model" be used such as; the firefighter needs to know how to practice situational avoidance, get out of problems, rescue a firefighter in (UM, 1999, p. 16) trouble and train on these issues regularly.

Firefighters may be able to utilize nationally recognized techniques to survive a critical situation and get themselves out. This can include techniques such as; RIT, ladder recue drills, personal rope escape, (UM, 1999, p. 16) and wall breaches. These techniques and others were developed based on firefighter injury and death. This should include policy and training (UM, 1999, p. 17) on things such as; carrying portable radios, accountability systems, per-fire planning, increased staffing, RIT, command process, and hazardous condition recognition.

The IC needs to locate the firefighter calling a mayday and can do this by the firefighter provided the IC with information to assist in the rescue. The acronym L.U.N.A.R. can be utilized as it stands for; location, unit number or crew, name of the firefighter, assignment, and resources needed. The IC then conducts a PAR in order to compare staffing with personal accountability tags (PAT) at the command post. Each crew will respond to the IC whether they have a PAR or not, meaning that the (UM, 1999, p. 14) crew is either intact or not intact.

The firefighter in need of help should activate their PASS to assist firefighters (RIT) to locate them more quickly. If not activated, RIT could pass by them without knowing it due to lack of visibility. Firefighters should be trained to react to the sounding of a PASS and to not pass by a firefighter with an activated PASS and check their status. Since time is passing by the

firefighter shouldn't simply sit still waiting for the PASS to activate. The firefighter needs to work to try and solve their problem while maintaining communication with the IC providing the IC with updates. If the firefighter is able to solve their (McCormack & Pressler, 2002, p. 19) problem they need to let the IC know this.

Even if the PASS activates, the firefighter should make noise to attract the attention of other firefighters pound on the floors or walls with a tool. A RIT commander may be appointed to the RIT operations. A PAR should be conducted and another RIT should be placed in standby for the (Kolomay & Hoff, 2003, p. 129) RIT deployed.

A firefighter calling a mayday can also manage their mayday by trying to orient themselves by calming themselves, checking the status of their air supply, noting what they were doing, where they are and whether their crew is intact. A quick systematic assessment may allow the firefighter in potential trouble to solve the immediate problem and get to safety. The firefighter should also communicate with their crew (McCoramack & Pressler, 2002, p. 16) to verify integrity as they may have become separated. Due to noise it may be difficult to hear the radio so a firefighter should call out for other crew member without the radios an get their attention. The firefighter should call out on the radio also. While calling out, the firefighter sold be working to solve their problem. The firefighters should notify the IC (2002, p. 18) of the problem. The IC can use LUNAR help locate the firefighter. The firefighter can also provide the IC with the status of their crew as the crew may not realize that they have a member left behind. The crew may be able to locate their firefighter calling the mayday and help solve their problem. The crew will need to update the IC as this will determine if a RIT is sent in or not.

Recommendation

I recommend that the Verona Fire Department adopt the policy developed (Appendix A) along with the check list (Appendix B) as soon as possible. The Verona Fire District Board is in the process of reviewing the policy and approving it with subsequent adoption b y the Fire Chief. The VFD doesn't have any method of preparing for a mayday or handling a mayday and this policy will help the VFD with both of these issues.

It's required that (NFPA, 2007, 3.3.69.2 p.1500-10) the department shall prepare and maintain written procedures that document members roles and responsibilities, expected functions, and training requirements for staffing to perform functions and how the functions is completed, how (p.1500-11) the incident will be managed.

National Fire Protection Association [NFPA], 2007, chap 7 p.1561-9) indicates that the IC will be in charge of the whole operation to include incident action plans, safety, accountability, request and application of resources. This standard also (2007, p. 1561.12) indicates that the command structure can be escalated or deactivated depending upon the complexity of the incident. Span of control can be reduced by implementing additional ICS positions taking into consideration SOP's.

Emergency operations such as a mayday must be documented in advance (WDC, 2002, p. 6) indicating who's in command and that a written plan include that for each two firefighters inside on fire suppression that two firefighters are outside to act as a rescue team (WDC, 2002, p. 3 & 6) and that one person is outside in command. The command shall be handled under the incident command system (NFPA, 2007, p. 1561-9) and training on roles and responsibilities shall be in writing (NFPA, 2007, p. 1500-10).

The procedure developed by the VFD should include standards on emergency operations (WDC, 2002, p. 6) and include information on emergency signals (DCPSC, 2009, p. 40) and emergency radio procedures (DCPSC, 2009, p. 40). Training must be addressed regarding the calling of a mayday (USFA, 2006, p. 11) by a firefighter in trouble and also for the incident commander on how to manage the incident (UM, 1999, 12) including RIT management (UM, 1999, p. 17). Firefighters need to be trained in order to know standard radio procedures (Barr & Eversole, 2003, p. 609) along with standard signals, PAR and PAT (UM, 1999, p. 14). The firefighter calling a mayday needs to know how to manage themselves during the mayday (McCormack & Pressler, 2002, p. 16).

The mayday incident is a serious one that cannot be taken lightly and must be planned for so that all are as prepared as possible. This incident may be the most serious incident ever handled by and IC or requested by a firefighter. We must be prepared to deal with such an emergency as this type of incident becomes very personal as all involved may know each other very well and we don't want to ever lose a firefighter under any circumstances. All fire departments should have a procedure to provide guidance during such a serious event. Without having a procedure in place, they risk the death of a firefighter and the intent of this research is to help others to prepare for such an event.

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APPENDIX - A

VERONA FIRE DEPARTMENT

PROCEDURE:
CHAPTER 100:
SECTION 6: Calling the MayDay
ISSUE DATE: June 5, 2010
PROCEDURE AUTHOR: ASSISTANT CHIEF BARGER

I **General Policy:** It is the general intent and purpose of this agency to provide its employees with as safe a work environment as possible while providing policy as it relates to emergency fireground operations such as handling a Mayday request by department personnel. This procedure provides guidelines on how a firefighter in trouble requests assistance and how the assistance is provided by the Incident Commander.

II **Scope:** This directive applies to all employees of the Verona Fire Department.

III **Definitions:**

A. IDLH Atmosphere: An atmospheric concentration of any toxic, corrosive, or asphyxiate substance that posses an immediate threat to life or would cause irreversible or delayed adverse health effect or would interfere with an individual's ability to escape from a dangerous atmosphere.

B. Rapid Intervention Team (RIT): A specifically designated team of no less than two firefighters but preferably four firefighters designed to provide for the rescue of emergency services personnel operating at emergency incidents if the need arises.

C. Incipient Fire: A fire in the initial or beginning stage which can be controlled or extinguished by portable fire extinguishers. However, it is the policy of the Verona Fire Department to deploy a 1 ¾" hand line any time there is a fire inside of a structure. Though the incident fire may actually be controlled by a smaller hose line or portable extinguisher, a 1 ¾" hose line shall be the preferred option.

D. PAR: Personnel Accountability Report

E. Qualified Firefighter: Any Firefighter possessing Wisconsin State Firefighter One Certification or above.

F. Mayday: A message stated by a firefighter indicating that they are lost, disoriented, stuck, trapped, injured, experiencing equipment failure, or experience a fall or structural collapse and are unable to exit the IDLH atmosphere on their own or before depleting their air supply and need immediate assistance. The mayday may be called by a firefighter who has found a firefighter in trouble and needs additional assistance. The mayday may also be called to conduct an emergency evacuation of a building or area or to report structural collapse, backdraft, or other conditions that may adversely affect firefighters involved in fire suppression.

IV **References:**

- Applicable National Fire Protection Administration (N.F.P.A.) codes
- Wisconsin Comm. 30
- Wisconsin Fire Chief's Handbook
- Wisconsin State Statute and Administrative Code

V **Procedures:**

A. Calling the MAYDAY:
If a firefighter cannot exit the IDLH without assistance and before depleting their SCBA air supply, they should request assistance by calling a "MAYDAY" on the radio to alert the Incident Commander (IC) of their emergency. This may include one firefighter finding another firefighter in need of assistance and the firefighters need help in getting out.

It is preferred that the firefighter calling the MAYDAY call it out on the radio at least three times; "MAYDAY, MAYDAY, MAYDAY" to ensure that the IC and others hear their call for assistance.

B. Communications Responsibilities:
As with any incident, effective fireground communications are paramount for the successful management of a MAYDAY operation.

The Dane County Public Safety Communications Dispatcher (DCPSC) will work with the IC to mitigate the emergency. The DCPSC dispatcher will ensure that the IC heard the MAYDAY. The dispatcher will clear the radio channel for EMERGENCY TRAFFIC by sounding the "warble" tone across the fireground radio channel to alert firefighters. The dispatcher will indicate that there is a MAYDAY and only emergency or priority radio traffic will be aired on that channel. The dispatcher will announce for all to standby for emergency radio traffic from the IC.

The DCPSC dispatcher(s) will work with the IC to manage fireground and MAYDAY communications. The dispatchers will handle communication segregation as needed to move non-MAYDAY operations to other radio channels so as to not interfere with the MAYDAY operation.

The DCPSC dispatcher will also engage a time management practice by alerting the MAYDAY IC of ten minute intervals, i.e. ten minutes into the operation, 20 minutes into the operation, etc…

C. Incident Command Responsibilities:
The IC shall immediately request that all fireground radio communications to be held to "EMERGENCY TRAFFIC" only so that IC may communicate with the MAYDAY caller and determine the needs of the firefighter(s).

The IC shall provide a brief but concise emergency message to all staff on the fireground to alert them of the scope of the situation and provide other pertinent information.

The IC will attempt contact with the MAYDAY caller to determine the problem being experienced in order to make an assessment of resource needs and actions to be taken. The IC shall use the acronym LUNAR to serve as a prompt to help establish the seriousness of the problem and what actions to take.

- Identify the **L**ocation of the problem, i.e. floor, room, building, etc…
- Identify the **U**nit the firefighter is assigned, i.e. Engine 1, Squad 5, etc…
- Identify the **N**ame of the firefighter, i.e. firefighter Jones,
- Identify the firefighter's **A**ssignment and **A**ir supply, i.e. fire suppression, ventilation, and, estimate of remaining air supply,
- Identify **R**esources believed to be needed.

D. Emergency Evacuation Signal:
When a MAYDAY is dispatched by the IC and/or the DCPSC dispatcher, apparatus driver/operators may be called upon to sound their apparatus air horns three times for approximately five (5) second intervals as an emergency evacuation signal.

E. MAYDAY Command Operations:
- The IC shall immediately establish a separate command, i.e. emergency command
- The IC shall immediately deploy a RIT to the firefighter(s) in need of assistance with the appropriate equipment

- The IC shall determine who the RIT should communicate with, i.e. IC, Operations, Safety, etc…
- Due to the seriousness of the MAYDAY operation the IC should move all non-MAYDAY operations to other radio channels and request new officers to manage the original operation
- The IC for both the MAYDAY and on-going fireground operations shall perform a PAR to establish accountability and to ensure that firefighters are on the proper radio channel
- Two separate accountability officers must be established
- The IC shall call for the next higher alarm to bring in additional resources that are/may be needed
- The IC shall establish incident officer staff, i.e. Rescue Officer, Safety Officer, Operations Officer, etc…
- The IC shall immediately establish a backup RIT to the initially deployed RIT
- The IC shall immediately request additional EMS resources
- The IC shall establish a Liaison Officer to help coordinator operations between the two Command Operations
- The IC must maintain communication with the firefighter(s) in need of help
- The IC must continue to assess the needs of the firefighter(s) in need of help
- The IC must conduct regular progress reports from the RIT
- The IC will call a PAR on fifteen (15) minute intervals
- The IC shall consider appointing a Chief's Aid to assist with note taking

F. Rescue Officer Responsibilities:

Rescuing a firefighter is a technical operation that requires someone to bring resources to mitigate the rescue quickly as the environment requires firefighters to work in a highly unsafe area that could cause additional firefighter injury, or, additional rescue needs. The RIT's and firefighter in need of help all need to maintain SCBA integrity.

G. Safety Officer Responsibilities:

Rescue operations are hi-risk. The operation may be taking place in a post-collapse environment or a flashover may have occurred. The IC must avoid sustaining additional injuries as each additional injury requires a resource commitment that will draw away from the priority rescue effort. An additional Safety Officer should be assigned to the rescue area to help control the risk taking. The office will be able to conduct an assessment of the hazards allowing time for the rescue officer to concentrate on the critical rescue effort.

The Safety Officer(s) must help the IC by monitoring operations at both Commands so that operations are coordinated. Due to the technical issues that affect the MAYDAY operation, the IC will want to ensure that non-MAYDAY operations don't adversely affect the MAYDAY operation.

H. MAYDAY Firefighter Responsibilities:

The firefighter calling for help should continue if possible to maintain orientation and self-rescue if possible by attempting the following when applicable;

- Stay calm
- Preserve air supply
- Physical exertion may have to be minimized
- Activate PASS
- Provide updates on status
- If more than one firefighter in trouble, stay together
- Consider attempting to locate an exit
- Attempt to follow hose line or life line to safety
- Retreat to area of safety
- Attempt to untangle self
- Assume a horizontal position to enhance the audible signal from the PASS and enhance thermal protection
- Continue to make sounds so the RIT may locate your position

- Move flashlight beam around with hopes that RIT will see your position

I. RIT Staffing & Equipment:
The Rapid Intervention Team should include no less than four personnel and carry the following equipment:

- Radio communications
- SCBA
- Rescue SCBA for downed firefighter
- Hand tools
- Thermal Imaging Camera (TIC)
- Hand lights
- Rescue saw or chain saw
- Rescue Rope
- Fire extinguisher or hose line

Once RIT locates the firefighter(s) in need of assistance the find and location shall be transmitted to the IC along with the status of the firefighter(s) and current situation, i.e. trapped, low on air, disoriented, lost, etc… The RIT shall inform the IC on what other resources they need to extricate the firefighter(s), and, inform the IC what actions should be taken by other firefighters to ensure that the RIT will get the firefighter(s) out.

J. Termination:
If the firefighter is able to provide for their own extrication they shall immediately notify the IC so as to not jeopardize other firefighters needlessly. Additionally, the IC may have to terminate the operation. If conditions become severe enough that it jeopardizes RIT ability to extract the firefighter, the IC shall call them out. This will be a most difficult decision.

_____ _____

By Order of the Fire Chief Date:

APPENDIX – B

MAYDAY
Incident Commander Checklist

- Ascertain from MayDay Caller:
  - ✓ Location
  - ✓ Unit
  - ✓ Name(s)
  - ✓ Assignment
  - ✓ Resources needed for rescue
  - ✓
- Emergency Traffic declaration
- Alert fireground that a MayDay has been declared
- Move non-MayDay units to a secondary fireground radio channel
- Select another Incident Commander for non MayDay operations
- PAR conducted by both Incident Commanders
- Request additional alarm(s)
- Commit a Rapid Intervention Team
- Change plan to a high priority rescue effort
- Select additional officers
- Assign additional RIT's
- Withdraw companies from affected areas as needed
- Re-enforce firefighting positions
- Ensure all doors are Open / Unlocked
- Ventilate
- Provide additional lighting
- Closely coordinate and control search efforts
- Monitor structural stability
- Maintain strong supervision and control of crews
- Control media